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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,492	09/29/2003	Yoshifumi Kato	5095-4068	4676

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NEW YORK, NY 10281-2101

EXAMINER

VU, PHU

ART UNIT	PAPER NUMBER
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2871

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/674,492	Applicant(s) KATO, YOSHIFUMI	
	Examiner Phu Vu	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-7,10-12,14,16,18,24 and 25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-7,10-12,14,16,18 and 24-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 9/27/2006 have been fully considered but they are not persuasive. Regarding the rejection of claim 6, applicant has 10B as previously assumed to meet the limitations of claims 6. However since claim 6 depends from claim 1, all the limitations of claim 1 must be met by the figure denoted in claim 6. Figure 10B does not appear to meet the limitation of "the first reflector of one of the plurality of stacked resonant layers and the second reflector of another of the plurality of stacked layers form a resonant structure" and "the resonant structure resonates light of a different predetermined wavelength compared to the plurality of stacked layers."

Regarding rejection of claims 1,2,5-7,10-12,14,16,18 and 24-25, applicant has argued that the buffer layer in Nakayama fails to satisfy a resonance condition and points to the fact that Nakayama refers to the structure as a double resonance structure. Even if this is the case however it is uncertain what conditions are required to satisfy the claimed invention. If the resonator condition is met by using certain materials, certain cavity length in tandem with one another or some combination of the like that it is not clear. The claim defines a resonator as a first reflector, second reflector and buffer material layer in between. Furthermore it is unclear whether any system with 2 mirrors and a half mirror between and two buffer layers will meet the limitations of the claim as what conditions required for resonance are not clearly defined as to specifically exclude as device such as that provided by Nakayama.

Claim Rejections - 35 USC § 112

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The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 6 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 6, limitations claimed in claim 7 appear to conflict with limitations set forth in the independent claim 1. For instance claim 7 refers to each resonant layer being separated from all the other layers. This appears to refer to embodiment fig. 10B however the limitation in claim 1 states “the first reflector of one of the plurality of stacked resonant layers and the second reflector of another of the plurality of stacked layers form a resonant structure” and “the resonant structure resonates light of a different predetermined wavelength compared to the plurality of stacked layers.”. In applicant’s specification light is resonated across 2 buffer layers to achieve this like in fig. 5. However in figure 5 each resonant layer is not separated from the others because resonant layer 59 for example shares a buffer layer with 31 and 58. Therefore, it is unclear what type of structure applicant is intending to claim. For examining purposes the limitations of claim 7 will be ignored since it appears to conflict with the limitations in the independent claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 5-6, 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakayama 5682402.

Regarding claims 1 and 6, Nakayama teaches a plurality of stacked resonant layers, where each resonant layer consists of a first reflector and a second reflector and a buffer layer (fig. 5 elements 2 and 5) interposed between first and second reflectors (1, 4b, 4a), wherein each layer resonates light of a predetermined wavelength compared to the other resonant layers (1, 2 and 4b for one resonator and element 2 is the resonant layer and 4b 5 and 4a show a second resonator and element 5 is the resonant for the resonant layer), wherein on resonant layer consists of an electroluminescent device having a first electrode (1) a second electrode (7) and organic electroluminescent layer disposed between said electrodes and wherein the electrodes are adapted to function as first reflector and second reflector and organic electroluminescent material is adapted to function as a buffer layer, wherein one reflective layer of a resonant layer and one reflective layer of a different resonant layer from a different resonant layer form a structure such that when said electroluminescent device emits light, the number of wavelengths of the resonant light is greater than the number of stacked resonant layers (see fig. 5-b2). The figure shows when combining the 2 resonant layers A and B that multiple wavelengths are resonated and these represented by the peaks in fig. 5b-2. **Regarding claim 2,** the reference shows the electroluminescent device emits "white light" because white light is merely a mixture of

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light from 400-700 nm figs. 1b , 2b, 3b and 4b, show some type of resonance at all of these wavelengths therefore the electroluminescent device emits white light.

Regarding claims 5 and 10, the reference shows a plurality of resonant layers formed adjacent to each other in a direction in which the resonant layers overlap such that the adjacent/stacked resonant layer share a reflective layer in common (see fig. 5a element 4b). The reference does not explicitly state buffer layer 5 and 4b and 4a form a resonant layer however applicant defines a resonant layer as a buffer layer between two reflective layers that "is capable" of resonating light. It appears from that some resonance occurs between 4a, 4b and 5 indicated by fig. 1a (see dotted portion as each double sided arrow indicates a resonator).

Regarding claim 11, the reference shows a reflector (1) of one of the plurality of stacked resonant layers totally reflects light.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakayma in view of Shimoda 6791261.

Regarding claim 7, Nakayam teaches all the limitations of claim 7 except a resin substrate used in light source. Shimoda teaches a electroluminescent resonator light source that discloses resin substrates that withstand heat treatment, exhibit light transmissivity and mechanical strength (see column 7 lines 40-45). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to apply a resin substrate to gain a substrate that can withstand heat treatment, mechanical strength, which provides robustness and also has transmissivity.

Claims 12, 16, 18 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakayama in view of Yokoyama 6507379.

Regarding claims 12 and 16, Nakayama teaches a plurality of stacked resonant layers, where each resonant layer comprises a buffer material (fig. 5 elements 2 and 5) interposed between two reflective layers (1, 4b, 4a), wherein each resonant layer is capable of resonating light of a predetermined wavelength compared to the other resonant layers (1, 2 and 4b for one resonator and element 2 is the resonant layer and 4b 5 and 4a show a second resonator and element 5 is the resonant for the resonant layer), wherein one of the plurality of stacked resonant layers consists of an electroluminescent device having a first electrode (1) a second electrode (7), wherein n the first reflector of one resonant layer and second reflector layer of a different resonant layer from a different resonant layer form a structure such that when said electroluminescent device emits light, the number of wavelengths of the resonant light is greater than the number of stacked resonant layers (see fig. 5-b2). The figure shows when combining the 2 resonant layers A and B that multiple wavelengths are resonated

and these represented by the peaks in fig. 5b-2. Nakayama fails to teach a display unit with a liquid crystal display with the above lighting unit. However, Yokoyama teaches a liquid crystal display that incorporates an organic electroluminescent backlight with a resonating structure to achieve improved miniaturization of display panels (see fig 2 and column 1 lines 60-65). Nakayama's electroluminescent light structure also has the advantage of providing an emission structure to encompass a plurality of luminescent devices, therefore allowing a single light source to replace a variety of applications (column 7 lines 10-25). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to apply Nakayama's light source to a LCD display to improve miniaturization and allow for a backlight with wide-ranging light emission characteristics.

Regarding claim 18, the reference does shows two resonators (see claim 16 rejection however not explicitly state buffer layer 5 and 4b and 4a form a resonant layer however applicant defines a resonant layer as a buffer layer between two reflective layers that "is capable" of resonating light. It appears from that some resonance occurs between 4a, 4b and 5 indicated by fig. 1a (see dotted portion as each double sided arrow indicates a resonator). The reference also shows resonated light comprising red light, green and blue light (see fig. 5b-2).

Regarding claim 25, the reference discloses a flexible resonant layer as flexible does not imply any degree of flexibility.

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Claims 14 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakayama in view of Yokoyama and further in view of Spitzer et al US Patent no. 5654811.

Regarding claims 14 and 24, the references disclose all the limitations of claim 24 except the display comprising comprises the light source light passing through a red filter, a green filter and a blue filter. Spitzer discloses a red, blue, and green color filters to achieve good color balance (see column 5 lines 19-32). The reference also shows the resonated light comprising a plurality of colors red, green and blue (see peaks at ~470nm (blue) ~510 (green) and ~650nm (red))Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to use red, blue, and green color filters to achieve a good color balance.

Conclusion

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu Vu whose telephone number is (571)-272-1562.

The examiner can normally be reached on 8AM-5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571)-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Phu Vu
Examiner
AU 2871


ANDREW SCHECHTER
PRIMARY EXAMINER